

## CURRENT-MODE PWM CONTROLLER

### FEATURES

- Automatic Feed-Forward Compensation
- Programmable Pulse-by-Pulse Current Limiting
- Automatic Symmetry Correction in Push-Pull Configuration
- Enhanced Load-Response Characteristics
- Parallel Operation Capability for Modular Power Systems
- Differential Current-Sense Amplifier With Wide Common-Mode Range
- Double Pulse Suppression
- Undervoltage Lockout
- Soft-Start Capability
- Shutdown Terminal

### DESCRIPTION

The UC1846 control IC provides all of the necessary features to implement fixed-frequency, current-mode control schemes, while maintaining a minimum external parts count. The superior performance of this technique can be measured in improved line regulation, enhanced load-response characteristics, and a simpler, easier-to-design control loop. Topological advantages include inherent pulse-by-pulse current-limiting capability, automatic symmetry correction for push-pull converters, and the ability to parallel power modules, while maintaining equal current sharing.

Protection circuitry includes built-in undervoltage lockout and programmable current limit, in addition to soft-start capability. A shutdown function is also available, which can initiate either a complete shutdown with automatic restart or latch the supply off.

Other features include fully latched operation, double pulse suppression and deadline adjust capability.

The UC1846 features low outputs in the OFF state.

### ORDERING INFORMATION<sup>(1)</sup>

PRODUCT	PACKAGE DESIGNATOR	PACKAGE	ORDERABLE PART NUMBER	PACKAGE QUANTITY
UC1846	TD	Bare die in waffle pack <sup>(2)</sup>	UC1846VTD1	100
			UC1846VTD2	10

(1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI web site at [www.ti.com](http://www.ti.com).

(2) Processing is per the Texas Instruments commercial production baseline and is in compliance with the Texas Instruments Quality Control System in effect at the time of manufacture. Electrical screening consists of DC parametric and functional testing at room temperature only. Unless otherwise specified by Texas Instruments AC performance and performance over temperature is not warranted. Visual Inspection is performed in accordance with MIL-STD-883 Test Method 2010 Condition B at 75X minimum.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

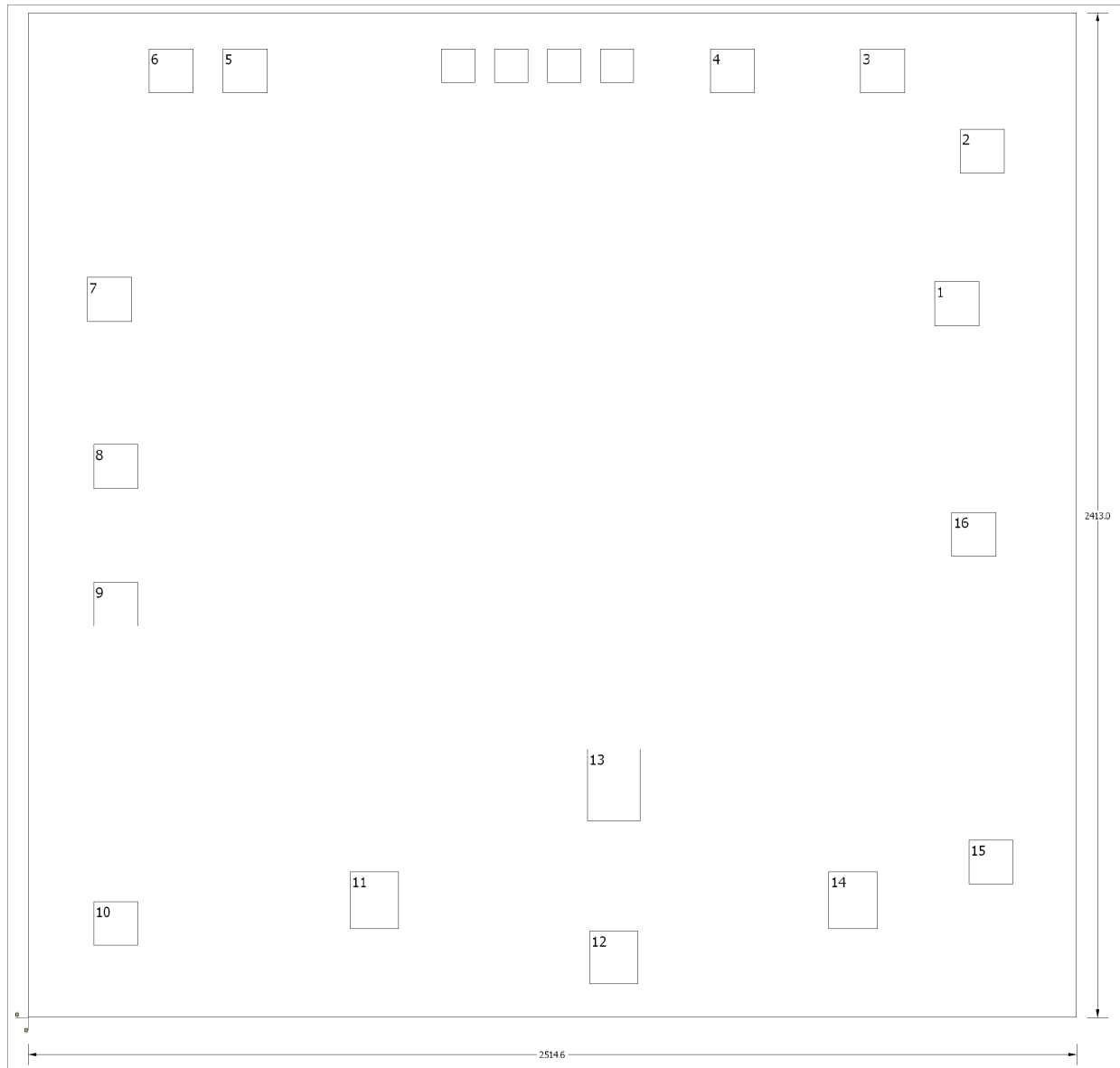


This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

**BARE DIE INFORMATION**

DIE THICKNESS	BACKSIDE FINISH	BACKSIDE POTENTIAL	BOND PAD METALLIZATION COMPOSITION	BOND PAD THICKNESS
10.5 mils.	Silicon with backgrind	Floating	AlCu2	2000 nm



**Table 1. Bond Pad Coordinates in Microns**

DESCRIPTION	PAD NUMBER	X MIN	Y MIN	X MAX	Y MAX
C/S SS	1	2174.24	1661.16	2280.92	1767.84
VREF	2	2235.2	2026.92	2341.88	2133.6
C/S-	3	1996.44	2219.96	2103.12	2326.64
C/S+	4	1635.76	2219.96	1742.44	2326.64
E/A+	5	467.36	2219.96	574.04	2326.64
E/A-	6	289.56	2219.96	396.24	2326.64
COMP	7	142.24	1671.32	248.92	1778
CT	8	157.48	1270	264.16	1376.68
RT	9	157.48	939.8	264.16	1046.48
Sync	10	157.48	172.72	264.16	279.4
A Out	11	772.16	213.36	889	350.52
GND	12	1346.2	81.28	1463.04	208.28
VC	13	1341.12	472.44	1468.12	645.16
B Out	14	1920.24	213.36	2037.08	350.52
VIN	15	2255.52	320.04	2362.2	426.72
Shutdown	16	2214.88	1107.44	2321.56	1214.12

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
UC1846VTD1	ACTIVE			0	100	TBD	Call TI	N / A for Pkg Type	0 to 0		<a href="#">Samples</a>
UC1846VTD2	ACTIVE			0	10	TBD	Call TI	N / A for Pkg Type	0 to 0		<a href="#">Samples</a>

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

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(3) MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

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